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Mr. Bill Johnson
Martha

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

SUBJECT: NSPS Policy Regarding Excess Emissions During Start-Up, Shutdown, Malfunction and Maintenance

DATE: AUG 30 1976

FROM: Don R. Goodwin, Director
Emission Standards and Engineering Division (MD-13)

TO: See Below

Enclosed is a copy of a letter to Mr. Alfred V.J. Prather representing the Kennecott Copper Corporation, concerning the NSPS promulgated for primary copper smelters. A draft of this letter was provided to your office in mid-July for review. Judging from the comments received, some explanation of NSPS policy regarding excess emissions during periods of start-up, shutdown, malfunction, and maintenance seems appropriate.

NSPS have two overall objectives: (1) to ensure that the best system of emission control is installed on a source, and (2) to ensure that this system is properly operated and maintained over the life of the source. The NSPS numerical emission limit generally accomplishes the first objective, while section 60.11(d) of the general provisions and any monitoring requirements in the NSPS generally accomplish the second objective. This does not mean, however, that EPA will only conduct one performance test on a new, modified, or reconstructed source, and thereafter rely solely on section 60.11(d). A performance test can be conducted at any time over the life of a source to determine compliance with the NSPS numerical emission limit. Given the high cost and long lead times normally associated with performance testing, however, we feel that much of the day-to-day enforcement of NSPS will be through section 60.11(d) to ensure that the emission control system is being properly operated and maintained.

Compliance with the NSPS numerical emission limit can only be determined by a performance test (except for the opacity emission limit). Performance tests can only be conducted during periods of representative operation of both the affected facility and the emission control system. All conditions except start-up, shutdown and malfunction are considered representative operation. Excess emissions during a performance test caused by start-up, shutdown, or malfunction, therefore, are exempt from compliance with the NSPS numerical emission limit. Only failures that could not have been prevented by proper operation and maintenance are considered malfunctions. Failures that could have been prevented by proper operation and maintenance are not considered malfunctions.

Section 60.11(d) of the general provisions requires that both the affected facility and the emission control system be properly operated and maintained at all times to minimize emissions, including

periods of start-up, shutdown, and malfunction. This section in conjunction with the monitoring requirements becomes the primary enforcement tool between performance tests to ensure that, once installed, the emission control system continues to operate effectively and efficiently. Excess emissions resulting from shutdown of the emission control system for maintenance will be considered a violation of the proper operation and maintenance requirements of section 60.11(d) and a violation of the NSPS numerical emission limit, provided a performance test is conducted, except when the maintenance is necessitated by a malfunction. A more detailed explanation of our interpretation of these provisions is enclosed.

Because of the tight time constraints imposed in our negotiations with Kennecott concerning litigation of the NSPS promulgated for primary copper smelters, the enclosed letter was mailed to Kennecott on Monday, August 30. We recognize fully the implications of NSPS policy on SIP policy, and to that end have attempted to communicate our NSPS policy, have considered the comments offered, and have worked closely with OGC and CPDD to minimize conflicts.

If you have any questions or would like to discuss this further; please do not hesitate to contact either Jack Farmer or Fred Porter (FTS telephone 629-5371).

Dan R. Goodwin

2 Enclosures

Addressees:
Directors, Enforcement Division, Regions VI, VIII, IX and X
Directors, Air and Hazardous Materials Division, Regions VI, VIII, IX and X
Acting Director, DSSE (EN-341)
John Bonine, OGC (A-132)

cc: J. Ostrov
R. Rhoads
B. Steigerwald
J. Farmer

Excess Emissions During Periods of Start-Up, Shutdown, Malfunction and Maintenance

Excess emissions during periods of start-up, shutdown, and malfunction are exempt from the numerical emission limit in the NSPS. Except for opacity emission limits, compliance with NSPS numerical emission limits can only be determined by a performance test (which requires prior notification of the owner or operator). Performance tests can only be conducted during periods of representative operation of both the affected facility and the emission control system.

Although excess emissions during periods of start-up, shutdown, and malfunction are not a violation of the NSPS emission limits, section 60.2(q) of the general provisions provides that failure of the affected facility or the emission control system to operate properly during a performance test is not considered a malfunction if it is the result entirely, or in part, of poor operation, careless maintenance, or any other preventable upset condition or equipment breakdown. Thus, EPA must decide, on a case-by-case basis, whether excess emissions resulting from a failure of the affected facility or the emission control system during a performance test was caused by poor operation or maintenance. If this is not the case, the failure is considered a malfunction and any excess emissions are exempt from the NSPS numerical emission limit.

If, on the other hand, EPA concludes that excess emissions resulting from a failure of the affected facility or the emission control system during a performance test could have been prevented by proper operation and maintenance, the failure is not considered a malfunction and the excess emissions are not exempt from compliance with the NSPS numerical emission limit. Furthermore, the owner or operator is in violation of section 60.11(d).

Section 60.11(d) of the general provisions requires an owner or operator to properly operate and maintain, to the maximum extent practicable, both the affected facility and the emission control system to minimize emissions at all times. Excess emissions at any time, therefore, including periods of start-up, shutdown, and malfunction, are subject to compliance with these requirements. A performance test is not required to determine compliance with section 60.11(d). The data provided by the continuous monitoring systems, which the NSPS require to be installed, in addition to information developed from a review of the operating and maintenance procedures and inspection of the source, will be used by EPA to determine compliance with these requirements.

Consequently, an owner or operator may be found in violation of section 60.11(d) without being found in violation of the NSPS numerical emission limits. If a performance test is conducted during which

a failure of the affected facility or emission control system occurs resulting in excess emissions, the owner or operator could be found in violation of both the NSPS numerical emission limit and section 60.11(d), if EPA does not consider this failure a malfunction.

ESED believes that excess emissions resulting from shutdown of the emission control system to perform routine maintenance constitute a violation of both the NSPS numerical emission limit, provided a performance test is conducted, and the proper operation and maintenance requirements of section 60.11(d), except in cases described in the next paragraph. The owner or operator can be found in violation of the NSPS numerical emission limit since operation at all times except start-up, shutdown and malfunction is considered representative operation. Excess emissions resulting from repair of equipment necessitated by a malfunction, however, cannot be considered a violation of the NSPS numerical emission limit, but may be a violation of section 60.11(d).

Excess emissions during all periods of maintenance cannot automatically be presumed in violation of section 60.11(d) for two reasons. First, with multiple emission control systems, an owner or operator may shut down one emission control system for routine maintenance while properly operating the remaining emission control systems. This could be done by curtailing production of the affected facility to maintain proper operating conditions for each of the emission control systems that remain in operation, or by over-design of the emission control systems to accommodate full production of the affected facility under these conditions. If a failure then occurred in one of the emission control systems that remained in operation and resulted in excess emissions, the owner or operator would not be considered in violation of section 60.11(d) if the emission control system was properly operated and maintained prior to and during the failure.

Second, excess emissions resulting from shutdown of the emission control system for maintenance necessitated by the sudden emergence of conditions which, if not corrected within a very short period of time, would lead to a serious failure of the emission control system or the affected facility, would not be considered in violation of section 60.11(d), if the owner or operator was judged to have properly operated and maintained both the affected facility and the emission control system prior to and during this period of maintenance. Because of the nature of this type of maintenance, which we refer to as "malfunction maintenance," it is not possible to spell out in detail all that it encompasses. Admittedly, this may lead to disagreements between owners and operators and EPA from time to time over whether specific periods of maintenance fall into this category. The key to resolving these disagreements is whether the owner or operator is judged to have properly operated and maintained the affected facility and emission control system, the seriousness of the failure, and the lead time

between the emergence of conditions indicating that a failure is developing and the point in time when the failure would occur unless action were taken. As a rough guideline, maintenance required within lead times of the order of two weeks or less to prevent a serious failure from occurring would probably qualify as "malfunction maintenance." Maintenance required within lead times of more than two weeks, however, would probably not qualify as "malfunction maintenance."

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

August 30, 1976

Mr. Alfred V.J. Prather
Prather, Seeger, Doolittle, Farmer and Ewing
1101 Sixteenth St., N.W.
Washington, D.C. 20036

Dear Mr. Prather:

We have considered the issues raised by the Kennecott Copper Corporation in their March 5, 1976, petition for reconsideration of the new source performance standards (NSPS) for primary copper, lead, and zinc smelters; in your letter of April 19, 1976, to Mr. Jerome Ostrov of EPA's Office of General Counsel; and in the meetings on March 23, July 20, and July 29, 1976. Our response to each of these issues concerning the NSPS is presented below.

Issue 1 - The NSPS fail to provide for excessive emissions during periods of start-up, shutdown, malfunction, and maintenance.

Under section 60.11(a) of the general provisions, compliance with the NSPS emission limit other than opacity emission limit can be determined only by performance tests conducted under section 60.8. Operations during periods of start-up, shutdown, and malfunction are defined as not constituting representative conditions for the purpose of performance tests under section 60.8(c). This in effect exempts emissions during periods of start-up, shutdown, and malfunction from compliance with the NSPS emission limit. Not all failures of the emission control system will automatically be considered malfunctions, however. As defined in section 60.2(q) of the general provisions, a failure which is the result entirely, or in part, of poor operation or careless maintenance is not considered a malfunction.

This exemption from compliance with the NSPS numerical emission limit during periods of start-up, shutdown and malfunction, however, does not exempt the owner or operator from compliance with the requirements of section 60.11(d)

of the general provisions. Under section 60.11(d) proper operation and maintenance of both the affected facility and the air pollution control system is required at all times, including periods of start-up, shutdown, and malfunction to the maximum extent practicable.

To clarify our intent, we propose to rewrite section 60.8(c) as follows:

> Performance tests shall be conducted under such conditions as the Administrator shall specify to the plant operator based on representative performance of the affected facility. The owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of the performance tests. Operations during periods of start-up, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test nor shall excess emissions during periods of start-up, shutdown, and malfunction be considered a violation of the applicable emission limit.

By contrast to the above, we do not agree with Kennecott's contention that provisions should be added to the NSPS permitting excess emissions during periods of routine maintenance on sulfuric acid plants. It is our view that allowing the smelter to operate uncontrolled during such periods is inconsistent with the philosophy that underlies section 111 of the Clean Air Act. Given Congress' intent that new sources operate only if controlled by the best system of emission reduction, we believe it would be contrary to that intent to allow an NSPS source such as a smelter to operate without any controls during foreseeable periods of routine maintenance of the emission control equipment.

Even if it means shutdown of part or all of the source during periods when routine maintenance is being performed on the emission control system, we believe the philosophy of section 111 requires that any NSPS source operate only when its emission control system is in operation. Beyond permitting exceptions for control equipment malfunctions--which by their nature are unpredictable and cannot be coordinated with shutdown of the source--we believe it would be inappropriate to bend from this reading of the statute. Section 111 also requires that costs be taken into account in establishing new source performance standards. We have, therefore, reevalua

the NSPS for copper smelters to determine whether the economic impact of not being able to operate the smelter during periods of routine acid plant maintenance would be unreasonable. Our conclusion is that the cost of shutting down a smelter for as much as two weeks each year to perform routine maintenance on the sulfuric acid plants is reasonable. A summary of our analysis and the basis for our conclusion is enclosed. We invite Kennecott's review of this analysis and will consider any comments Kennecott may wish to make.

To avoid any misunderstanding, it seems appropriate to discuss what we mean by malfunction and routine maintenance. Unlike a malfunction which we consider as essentially an unpredictable event and therefore beyond the control of a smelter operator, we consider routine maintenance as basically a predictable event, which can be scheduled to a large extent at the discretion of a smelter operator. As a result, although an operator cannot avoid routine maintenance, he has a measure of control over routine maintenance which he does not have over a malfunction.

We do not consider repair of equipment necessitated by a malfunction as routine maintenance. Excess emissions during repair of equipment necessitated by a malfunction would be considered under the existing malfunction regulations.

There is an area of maintenance, however, which is directly related to malfunctions and which we do not consider as routine maintenance. This is maintenance necessitated by the sudden emergence of conditions which, if not corrected within a very short period of time, would lead to a serious malfunction or failure of the emission control system or the process equipment. We would consider excess emissions during maintenance under these conditions as the result of a malfunction and subject to the existing malfunction regulations.

Because of the nature of this type of maintenance, which we refer to as "malfunction maintenance," it is not possible to spell out in detail all that it encompasses. This may lead to disagreements between smelter operators and the Agency from time to time over whether specific periods of maintenance fall into this category. The key to resolving these disagreements is the seriousness of the malfunction, and the lead time between the emergence of conditions indicating that a malfunction situation is developing and the point in time when the malfunction would occur unless action is taken. As a rough guideline, we would tend to consider maintenance required within lead times of the order of two weeks or less

to prevent a serious malfunction from occurring, as qualifying as "malfunction maintenance." Maintenance required within lead times of more than two weeks, we would tend to consider as routine maintenance.

A specific example may help to clarify our concept of routine maintenance and "malfunction maintenance." Generally, the pressure drop across the catalyst stages in a sulfuric acid plant increases slowly in a linear fashion, providing the operator with a lead time of four to six months in which to schedule maintenance involving screening of the catalyst to reduce the pressure drop. We would consider this maintenance as routine maintenance. Occasionally conditions arise which cause the pressure drop across the catalyst stages to increase rapidly in an exponential fashion. If not corrected within a couple of weeks, this pressure drop would reduce the capacity of the acid plant and require by-passing of a portion of the gases normally processed in the acid plant. We would consider maintenance involving screening of the catalyst under these conditions as "malfunction maintenance."

Issue 2 - <u>The NSPS prescribe averaging times too short to accommodate the normal fluctuations in emissions inherent in smelting operations.</u>

As stated in Kennecott's petition for reconsideration, emission data from a double-absorption sulfuric acid plant at ASARCO's El Paso, Texas, smelter served as the basis for establishing the emission limit and averaging time prescribed in the NSPS. Our analysis of this data, however, was more extensive than Kennecott implies in their petition. While it is correct that these emission data reflect lower than normal sulfuric acid plant inlet sulfur dioxide concentrations, the data were adjusted in our analysis to reflect operation at the higher sulfur dioxide concentrations typically experienced at a copper converter aisle. These data were also adjusted to reflect catalyst deterioration. Thus, Kennecott's claim that our analysis indicates that excursions above the standards would occur considerably more than 1.2 percent of the time under normal conditions is incorrect.

A performance test to determine compliance with the NSPS consists of the arithmetic average of three separate six-hour emission tests. Our analysis of the ASARCO emission data indicates that the possibility of a performance test exceeding the NSPS emission limit under normal conditions is extremely low, less than 0.15 percent.

We feel, therefore, that the promulgated standards can be achieved and that the eighteen-hour averaging time (three six-hour averages) effectively masks the normal fluctuations experienced within the copper smelting process. We recognize, however, that it is possible for emissions during a specific six-hour period to exceed the NSPS emission limit during normal operation. We propose to accommodate these occurrences by rewriting section 60.165(d)(2) to revise the excess emission reporting requirements. The new section 60.165(d) will read as follows:

§60.165 Monitoring of operations.

(d) For the purpose of reports required under §60.7(c), periods of excess emissions that shall be reported are defined as follows:

(2) Sulfur dioxide. Any six-hour period as described in paragraph (c) of this section, during which the average emissions of sulfur dioxide, as measured by the continuous monitoring system installed under paragraph (b) of this section, exceeds the standard under §60.163, except that 1.5 percent of the averages during any quarter may exceed the standard under §60.163. This exception does not apply to excess emissions during periods of start-up, shutdown, and malfunction.

Issue 3 - <u>The NSPS are not limited to emissions of air pollutants as they must be under section 111 of the Clean Air Act.</u>

This issue, dealing with the visible emissions standard, was discussed at our March 23, 1976, meeting with Kennecott. The intent of the visible emissions standard is to limit acid mist emissions from sulfuric acid plants installed to comply with the standard. We feel that this is an appropriate standard and believe that Kennecott now shares this view.

If you have any questions, or would like to discuss these issues further, please do not hesitate to contact either Jack Farmer or Fred Porter of may staff at (919) 688-8146, extension 371.

Sincerely yours,

Don R. Goodwin
Director
Emission Standards and
Engineering Division

Enclosure

cc: Ivor G. Pickering